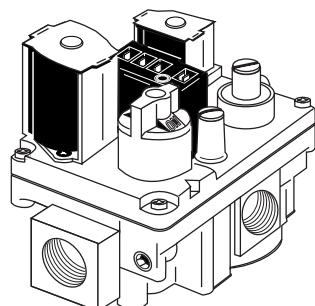


**WHITE-RODGERS****36E93-304**Delay-Opening Combination Gas Valve
INSTALLATION INSTRUCTIONS**Operator: Save these instructions for future use!**

**FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE
INSTALLING OR OPERATING THIS CONTROL COULD CAUSE PERSONAL INJURY
AND/OR PROPERTY DAMAGE.**

DESCRIPTION

The 36E93-304 combination gas valve is designed for intermittent ignition system applications. The valve is equipped with a redundant solenoid valve that controls gas flow to the pilot and main burners, a main valve that controls gas flow to the main burner, a pressure regulator to maintain a constant outlet pressure, and a two-position gas cock knob for manual gas shut-off.



SPECIFICATIONS

Type of Gas: Natural gas
LP gas (use conversion kit)

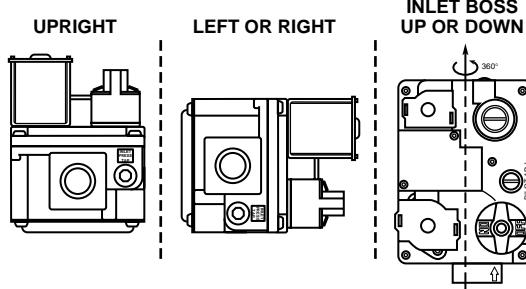
Ambient Temperature:
-40° to 175°F

Pressure Regulator Setting:
Nat. Gas – 2.5 to 5.0" W.C.
LP Gas – 7.0 to 12.0" W.C.

Pressure Rating: 14" W.C. (1/2 PSI) max.
Voltage: 24 VAC
Frequency: 50/60 Hz

PIPE SIZES/CAPACITIES

Pipe Sizes Available (inches)	Capacity (BTU/hr) at 1" pressure drop across valve	
	AGA Std. Nat. Gas (1,000 BTU/cu. ft.)	LP Gas (2,500 BTU/cu. ft.)
3/8" x 3/8" NPT any combination	75,000	121,500
3/8" x 3/4" NPT straight through	75,000	121,500
1/2" x 3/8" NPT any combination	100,000	162,000
1/2" x 1/2" NPT any combination	140,000	226,800
1/2" x 3/4" NPT straight through	140,000	226,800

MOUNTING POSITIONS:
Upright, or 0° to 90° from upright**Figure 1. Gas valve mounting positions****CONTENTS**

Description	1
Specifications	1
Precautions	2
Installation	3
Pilot Gas Connection	
System Wiring	
Adjustment	5
Manual Valve Knob	
Pilot Gas Adjustment	
Pressure Regulator Adjustment	

**WHITE-RODGERS DIVISION**

EMERSON ELECTRIC CO.

9797 REAVIS ROAD

ST. LOUIS, MISSOURI 63123-5398

Printed in U.S.A.

PART NO. 37-5291C

Replaces 37-5291B

9615

PRECAUTIONS

DO NOT BEGIN INSTALLATION UNTIL YOU READ THE FOLLOWING PRECAUTIONS.

! WARNING



If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury or loss of life.

1. Failure to turn off electric or main gas supply to heating system could cause personal injury and/or property damage by shock, gas suffocation, fire, and/or explosion.
2. Do not use this control on circuits exceeding specified voltage. Higher voltage will damage the control and may cause shock or fire hazard.
3. NEVER USE FLAME OR ANY KIND OF SPARK TO CHECK FOR GAS LEAKS—COULD CAUSE FIRE AND/OR EXPLOSION.
4. DO NOT USE WIRE JUMPER on pilot systems, such as standing pilot, proven pilot, or spark-to-pilot ignition—a fire and/or explosion may result.
5. Do not use a control set for natural gas with LP gas, or a control set for LP gas with natural gas. Personal injury and/or property damage, gas suffocation, fire, and/or explosion may result.

! CAUTION

1. Do not short out terminals on gas valve or primary control to test. Short or incorrect wiring can cause equipment damage, property damage, and/or personal injury.
2. This control is not intended for use in locations where it may come in direct contact with water. Suitable protection must be provided to shield the control from exposure to water (dripping, spraying, rain, etc.).

INSTALLATION

1. Turn off electrical power to the system at the fuse box or circuit breaker. Also turn off the main gas supply.
2. If replacing an existing valve, disconnect all plumbing and electrical connections from the old control.
3. The control may be installed in any position, except upside down. The arrow on the bottom plate indicates the direction of gas flow through the valve.
4. You should use new pipe that is properly chamfered, reamed, and free of burrs and chips. If you are using old pipe, be sure it is clean and free of rust, scale, burrs, chips, and old pipe joint compound.
5. Apply pipe joint compound (pipe dope) or teflon tape **that is approved for all gases, only to the male threads of the pipe joints. DO NOT** apply compound or teflon tape to the first two threads (see fig. 3 for typical piping connections).
6. If you are using a vise or open-end wrench to hold the valve while installing piping, do not tighten excessively, as this may damage the valve.
7. See **SYSTEM WIRING** when making electrical connections. After all gas and electrical connections are completed, turn gas on and check for gas leaks with leak detection solution or soap suds. Bubbles forming indicate a leak. **SHUT OFF GAS AND FIX ALL LEAKS IMMEDIATELY.**

PILOT GAS CONNECTION

These valves are shipped with the pilot outlet plugged. For installations requiring pilot gas, remove the plug and use the fitting packed separately with the control.

Install the fitting into the pilot gas tapping, turning until finger-tight (see fig. 2). Insert clean, deburred tubing all the way through the fitting. Hold the tubing securely in place and slowly tighten the fitting until you feel a slight "give". Then tighten the fitting an additional 1½ turns.

See **ADJUSTMENT** section (page 5) and fig. 6 for pilot set up.

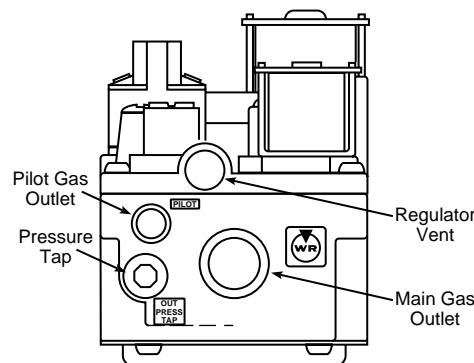


Figure 2

NOTE

All piping must comply with local codes, ordinances, and/or national fuel gas codes.

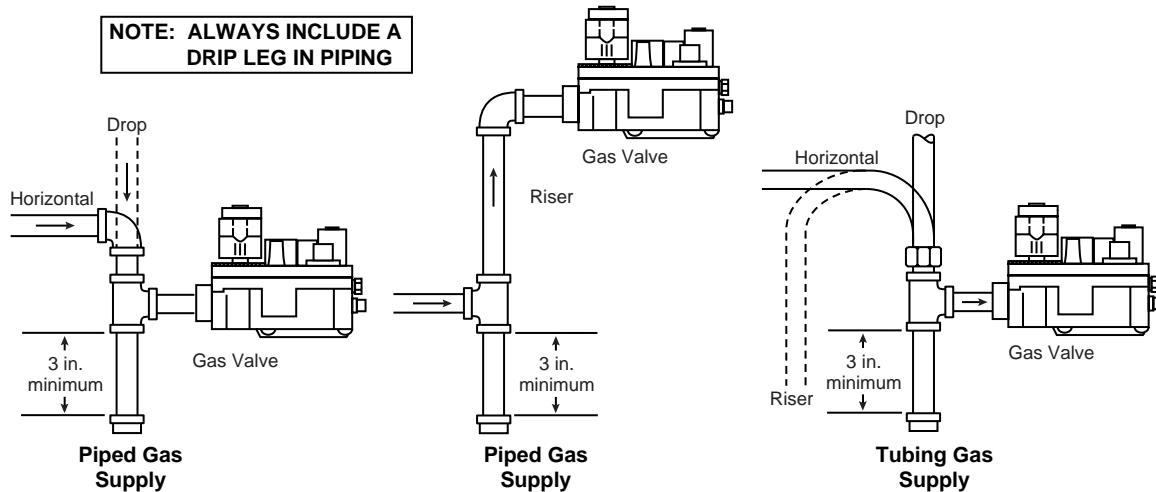


Figure 3. Typical gas valve piping

SYSTEM WIRING

REFER TO AND FOLLOW THE APPLIANCE MANUFACTURER'S WIRING DIAGRAM. REFER TO FIG. 4 FOR TERMINAL IDENTIFICATION.

NOTE

All wiring should be installed in accordance with local and national electrical codes and ordinances.

Always check that the electrical power supply used agrees with the voltage and frequency shown on the gas control.

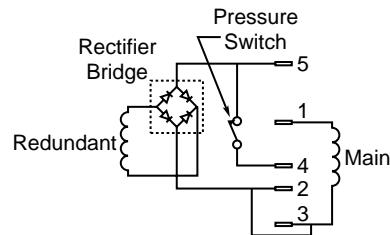
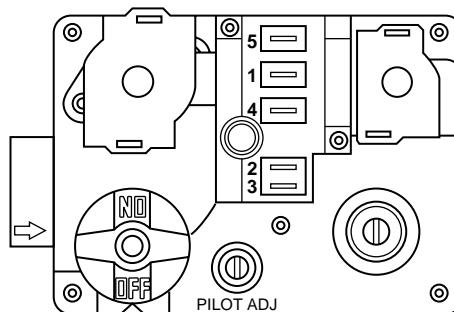


Figure 4. Gas valve wiring diagram

ADJUSTMENT

MANUAL VALVE KNOB

The manual valve knob is a two-position (ON-OFF) type. To turn manual valve **on**, rotate knob clockwise or counterclockwise to line up the word **ON** on the knob with the indicator on the cover casting (see fig. 5). To turn manual valve **off**, rotate knob clockwise or counterclockwise to line up the word **OFF** on the knob with the indicator on the cover casting.

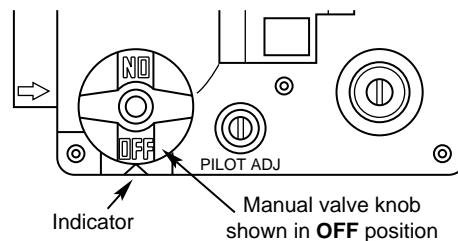


Figure 5. Manual gas valve knob

PILOT GAS ADJUSTMENT

These controls are factory preset to provide proper pilot gas flow for most applications. If additional adjustment is necessary, follow these steps.

1. Turn off all electrical power to the system before making any adjustments.
2. Remove the pilot adjust cover screw and gasket to expose the adjusting screw (see fig. 6). Turn the adjusting screw **clockwise to reduce pilot flame**, or **counterclockwise to increase pilot flame**.
3. Replace the gasket and pilot adjust cover screw and tighten securely.
4. Restore power to the system.

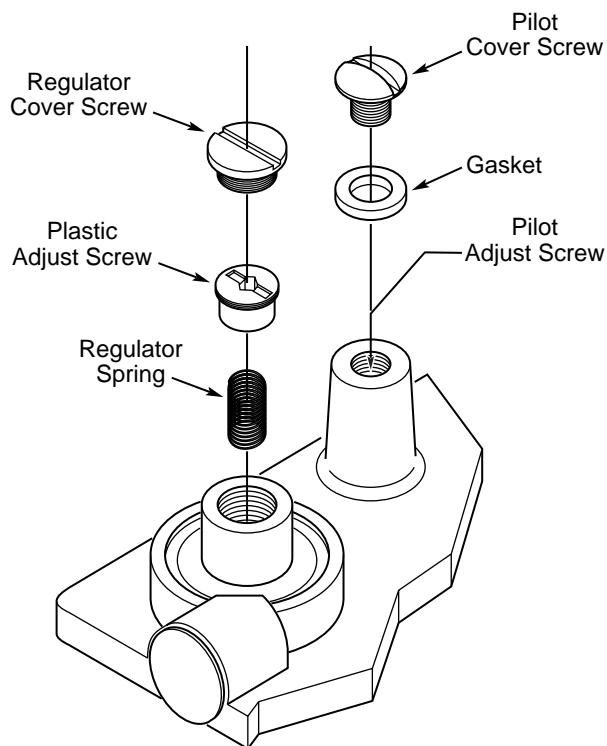


Figure 6

PRESSURE REGULATOR ADJUSTMENT

These controls are shipped from the factory with the regulator set for 3.5" W.C. (natural gas, full flow). Consult the appliance rating plate to ensure burner manifold pressure should be 3.5" W.C. If another outlet pressure is required, follow these steps.

If a valve has been factory-adjusted for the 2.5 to 5 inches W.C. range, it cannot be field-adjusted outside that range. This is also true for valves adjusted to the 7.5 to 12 inches W.C. range for LP gas.

1. Turn off all electrical power to the system.
2. Attach a manometer to the outlet pressure tap of the valve.
3. Turn on system power and energize valve.
4. Remove regulator cover screw and turn regulator adjust screw **clockwise to increase pressure**, or **counterclockwise to decrease pressure** (see fig. 6). Always adjust regulator to provide the correct pressure according to the original equipment manufacturer's specifications listed on the appliance rating plate.
5. Replace regulator cover screw and tighten securely.

LIGHTING INSTRUCTIONS

FOR YOUR SAFETY READ BEFORE OPERATING

⚠ WARNING



If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- A. This appliance is equipped with an intermittent ignition device which automatically lights the appliance. Do not try to light the pilot by hand.
 - B. **BEFORE OPERATING** smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
 - C. Use only your hand to turn the gas control knob. **Never use tools.** If the knob will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
 - D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.
- FOR YOUR SAFETY**
"WHAT TO DO IF YOU SMELL GAS"
- Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.

OPERATING INSTRUCTIONS

1. **STOP!** Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
5. Remove control access panel.
6. Turn gas control knob clockwise to "OFF."
7. Wait five (5) minutes to clear out any gas. If you then smell gas, **STOP!** Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.
8. Turn gas control knob counterclockwise to "ON."
9. Replace control access panel.
10. Turn on all electric power to the appliance.
11. Set thermostat to desired setting.
12. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove control access panel.
4. Turn gas control knob clockwise to "OFF." **Do not force.**
5. Replace control access panel.

If you need more information about this product, you may write to us at::

WHITE-RODGERS DIVISION, Emerson Electric Co.
9797 Reavis Road
St. Louis, MO 63123-5398